DOCUMENT RESUME

ED 300 208 SE 049 703

TITLE	Curriculum Guidelines for Environmental Education.
INSTITUTION	Scottish Environmental Education Council (Scotland).
REPORT NO	ISBN-0-946584-14-1
PUB DATE	87
NOTE	29p.
PUB TYPE	Viewpoints (120) -- Reports - Descriptive (141) -- Guides - Non-Classroom Use (055)
EDRS PRICE	MF01/PC02 Plus Postage.
DESCRIPTORS	Conservation (Environment); *Conservation Education; *Curriculum Design; Curriculum Development; Curriculum Guides; Ecology; *Environmental Education; Foreign Countries; Science and Society; Science Education; Science Instruction; Secondary Education; *Secondary School Science
IDENTIFIERS	Conservationists; Environmental Awareness; *Scotland

ABSTRACT

This curriculum guideline for environmental education in Scottish schools is for levels 10-14, 14-16, and post-16. The rationale of the program is based on a belief of uneasiness of ordinary people about their environment, the relationship of people with their environment, a need for change, a lack of current progress, the need to teach for the environment, and the development of an environmental ethic. The aim of the curriculum is identified as "education in and through the environment, education about the environment, and education for the environment." The guiding principles are based on: an ecocentric and concentric approach; a holistic view; a coherent, continuous, and progressive lifelong process; direct experience; interdisciplinary character; environmental issues; problem solving; a variety of teaching and learning approaches; being pupil centered; outward looking; generating action; and being exemplary. Course topics are developed for primary, secondary, and post-16 levels. Collaboration between environmental organizations is stressed along with an awareness of available resources. The use of primary environmental sources is advocated. Means of implementation and recommendations are given for the curriculum. Appendices include a flowchart of the "Framework for the Production of a School Environmental Education Policy," and a listing of environmental organizations, with addresses. (ML)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED300208

CURRICULUM GUIDELINES FOR ENVIRONMENTAL EDUCATION

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

X This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Kate Sankey

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

SCOTTISH ENVIRONMENTAL EDUCATION COUNCIL

EUROPEAN YEAR OF THE ENVIRONMENT

SE 049 703

CURRICULUM GUIDELINES
FOR
ENVIRONMENTAL EDUCATION

SCOTTISH ENVIRONMENTAL EDUCATION COUNCIL

EUROPEAN YEAR OF THE ENVIRONMENT

ISBN 0 946584 14 1

NOTE

These Guidelines have been prepared under the aegis of the Scottish Environmental Education Council with the assistance of the Scottish Curriculum Development Service.

CURRICULUM GUIDELINES FOR ENVIRONMENTAL EDUCATION

PREFACE

These Guidelines acknowledge the broad nature of environmental education at both a philosophical and practical level. The Working Party which prepared them addresses itself to headteachers because it recognises the influence which they can exercise in the development of the curriculum, to senior management in schools, to directors of education, divisional education officers, and their advisers who are responsible for the resources and support which teachers receive. In the pages which follow we attempt to persuade headteachers and equally class teachers of the necessity and importance of adopting a co-ordinated approach to environmental education.

We believe that an understanding of the interacting forces at work on the face of our planet is of fundamental importance to every young person. An appreciation of environmental issues and the need for conservation should rank with basic literacy and numeracy as one of the fundamentals which should underpin the curriculum for all pupils. It is ironic that, although the importance of environmental education is generally accepted, the provision for it is so seldom well co-ordinated in our schools. There are elements of environmental education through environmental studies already in the education of most Scottish pupils. It is, however, often haphazard and unstructured and we challenge this approach. If environmental education is to be effective it must be structured and it must be present in the curriculum of every young person in Scottish schools.

In these Guidelines we review the current status of environmental education in Scotland and investigate provision and opportunities for environmental education in existing and proposed school syllabuses. While we are well aware of the competition for space in the curriculum we are not arguing for the addition of another subject to an already overburdened timetable; we are advocating that environmental education be incorporated within the syllabuses of existing courses and that it permeate the curriculum of primary and secondary schools. In this and subsequent publications we shall consider ways and means of supporting and securing the development of programmes of environmental education in schools.

We are convinced that if structured and co-ordinated environmental programmes are adopted in schools young people will become more critically aware of their environment and more effective members of their local and national communities.

GORDON WILSON
Chairman

SEEC WORKING PARTY ON ENVIRONMENTAL EDUCATION IN THE CURRICULUM

MEMBERS OF WORKING PARTY

Gordon Wilson (Chairman)	Headteacher Shawlands Academy, Glasgow
Alan Adam	Curriculum Officer Scottish Curriculum Development Service, Glasgow
John Baldwin	Chief Executive Scottish Wildlife Trust, Edinburgh
Bartolomeo Biagini	Adviser in Art Ayr Division, Strathclyde Regional Council
Lalit Hazra	Teacher of Chemistry Victoria Drive Secondary School, Glasgow
Marista Leishman	Education Officer National Trust for Scotland, Edinburgh
Leonard McConnell	Headteacher Dalmilling Primary School, Ayr
Robert O'Brien	Adviser in Environmental Education and Geography Grampian Regional Council
Ian Pascoe HMI	Scottish Education Department
John Smyth OBE	Chairman, SEEC Professor of Biology, Paisley College of Technology
Ann Watters	Assistant Adviser of Science Fife Regional Council
Roger Wheater	Director Royal Zoological Society of Scotland, Edinburgh
Ian Hunter (Minute Secretary)	Depute Headteacher Shawlands Academy

CONTENTS

		Page
	PREFACE	
	SEEC WORKING PARTY MEMBERSHIP	
1.	INTRODUCTION	1
2.	RATIONALE	3
3.	AIMS	5
4.	GUIDING PRINCIPLES	6
5.	ENVIRONMENTAL EDUCATION IN THE FORMAL CURRICULUM	8
6.	ENVIRONMENTAL ORGANISATIONS AND THE CURRICULUM	13
7.	MEANS OF IMPLEMENTATION AND RECOMMENDATIONS	16
	APPENDIX A : FRAMEWORK FOR THE PRODUCTION OF A SCHOOL ENVIRONMENTAL EDUCATION POLICY	19
	APPENDIX B : ENVIRONMENTAL ORGANISATIONS	20
	APPENDIX C : LIST OF USEFUL ADDRESSES	21

1. INTRODUCTION

1.01 At a time when the curriculum is being re-examined at 10-14, 14-16, and post-16 there is an opportunity to reconsider the place of environmental education as a fundamental part of the curriculum of all pupils and to examine the mechanisms for achieving this.

1.02 All pupils in recent years have been given the opportunity for learning about the environment but environmental experience for the majority is unlikely to have been part of a whole-school programme. It is important here to distinguish between environmental studies and the much wider dimension of environmental education. While the former is a means towards the latter it is transcended by it: such studies contribute to programmes of environmental education in different ways. Through environmental education pupils are made aware of the processes taking place between themselves and the environment, leading to an appreciation and care for it, and the development of an environmental ethic.

1.03 Where environmental education is acknowledged as an essential component of the curriculum it is seldom seen in a whole-school context and, despite the often brilliant efforts of individual teachers, it has not attained the place in the educational firmament that its importance demands. With fundamental revision of so many parts of the school curriculum going on at present, these Guidelines are an attempt to review the current position in schools and suggest ways in which the principles of progression, continuity, and coherence can inform programmes of environmental education in the curriculum of primary and secondary schools.

1.04 The Guidelines provide a statement of rationale and aims, indicate ways in which programmes of environmental education can be made part of whole-school policy, how the programmes might be implemented, co-ordinated and managed, and where support and resources can be obtained. A mechanism is suggested in Appendix A for achieving these objectives. However, the important principle to be established is that both curricular and organisational structures are necessary to ensure effectiveness and this can best be achieved by schools taking full account of local needs and circumstances.

1.05 The Working Party affirms its support for the World Conservation Strategy which in the final analysis will be the key to the safeguarding of the global environment. It is important that the implications of the Strategy as it relates to the sensible use of renewable resources, the maintenance of genetic diversity, and the safeguarding of ecosystems is understood by as much of the population as possible including pupils at school.

1.06 The HMI Report on "Environmental Education" in 1974 and "Learning for Living" in 1985 established bench marks in the progress and development of environmental education in Scotland. In the early 1980s the Strathclyde Environmental Education Group designed a model to assist teachers in developing an environmental approach to topical issues [The Environment : A Learning Experience, CCC, 1985]. These Guidelines and the series of support documents to follow will further contribute to the thinking in this important curricular area. The series will add considerable strength to the case for environmental education in both primary and secondary schools and the inculcation in young people of a caring and responsible attitude towards their environment. If the school system is to produce young people sensitive to inner city issues, competition for scarce resources, conservation of our heritage, and problems such as acid rain and Chernobyl, then adequate provision requires to be made within the curriculum.

1.07 Many schools already possess programmes which lead to pupils becoming well informed, environmentally aware citizens but often these programmes do not include all pupils. One of the conclusions of these Guidelines is for a whole-school policy to meet the needs of environmental education for all pupils through the review of existing courses. Staff should be aware of the school's policy and be encouraged to use every curricular opportunity to reinforce the school's aim to make pupils environmentally aware.

1.08 These Guidelines will be supported by a range of documents for specific areas of the curriculum - Environmental Studies within primary schools, Geography, Biology, Science, and Art and Design at Standard grade, with others to follow in due course.

2. RATIONALE

> *"In our hands, today, rests the future of all living things. If we use our power wisely, life will continue to thrive on this blue planet and all of mankind may look forward to the future."*
>
> R F Dassman

2.01 There is a widespread and growing unease amongst ordinary people throughout the world about the environment and environmental quality. What is remarkable is the speed with which this new awareness has grown and is continuing to grow, to the extent that the environment seems bound to become perhaps the major issue in human affairs in the foreseeable future. World population continues to grow exponentially while we make prodigal use of the earth's dwindling resources, in the process causing the wholesale elimination of plant and animal species and their habitats, and gross pollution of land, air, and water on a global scale. This combined assault on the environment appears now to threaten the very life-support systems of the planet. The "ecocrisis", so-called, is upon us and its impact is already being felt, most acutely by the poor and vulnerable of the world, but also and increasingly, however insidiously, by the whole of mankind.

2.02 The problems of our relationship with the environment lie deep in our culture, in the way we view the world, and in prevailing value systems. We see ourselves as separate from rather than as part of nature, view problems in narrow cause-effect terms, and try to solve them by "techno-fix" spot treatment of symptoms rather than fundamental change. In pursuit of objectivity we discount intuition, feelings and values, overlook moral considerations and see solutions merely in terms of utility and expediency. It seems that a new perception of reality is needed which combines a more integrated, systemic view with a new ethic which takes account of the environment as well as people. The promotion of such a new perspective provides a major and urgent challenge for education.

2.03 Given the nature of the challenge and the urgent need for a new perspective, why is it that the history of environmental education thus far in Scotland has been somewhat disappointing, in spite of the best efforts of a small number of enthusiasts within the system and the support of a range of outside agencies? While there have been some examples of good practice, the inclusion of environmental education within the curriculum has been fragmentary and incomplete, in both conceptual and organisational terms. Few schools, if any, either primary or secondary, have a coherent, whole-school policy on environmental education - as advocated in the HMI Report of 1974 - and few, if any, have developed progressive, continuous, and coherent programmes of environmental learning.

2.04 Many reasons can be advanced to account for this lack of progress. At a fairly superficial level, there has been a failure of definition and some confusion about the nature and purpose of environmental education. This, in part, must reflect deficiencies in teacher training in this context, as does the fairly widespread lack of understanding and expertise in environmental disciplines among teachers, particularly at primary level. This has often led to a lack of self-confidence in dealing with the new ideas, the new teaching approaches and new settings which are arguably essential for effective environmental education. Add to these problems the often daunting complexity and potentially contentious nature of environmental issues, and it is not difficult to understand why it has often proved difficult to mobilise teacher interest on a sustained basis.

2.05 This lack of progress is also a product of the inertia and inflexibility of the system itself, in particular the protracted nature of curriculum change and reform and the competing claims of other highly desirable dimensions that lie between the core and the elective area. Another major constraint is that we still divide knowledge into subjects and experience into aspects or modes and regard these as essentially distinct. As a result we perpetuate a compartmentalised curriculum, certainly at secondary level, which cannot easily accommodate an holistic and interdisciplinary approach. This clearly makes it difficult to move beyond the cognitive and mechanistic in environmental learning - beyond learning merely about the environment rather than for the environment.

2.06 Moreover, much environmental teaching is decidedly utilitarian in its approach. Too often the emphasis is placed on learning through the environment rather than for the environment. Too often the environment is seen merely as a vehicle for learning or as "good curricular terrain". This is innocent enough in a way, but it is indicative of a prevailing failure to fully recognise the essential affective aims of environmental education. Explicit interest in environment is not enough: it is also essential to acknowledge the central importance of the concept of an environmental ethic. An environmental ethic implies using knowledge and awareness to formulate an appropriate code of values and behaviour that help preserve the ecological integrity of the planet, but it is the nature of that knowledge and awareness and the means by which these can be promoted which is problematical.

2.07 An ethic comprises beliefs, attitudes, and values, all of which have an intuitive and emotional as well as an intellectual basis, affective as well as cognitive. It can also be argued that the awareness which lies behind positive environmental values and attitudes should be firmly based in a sense of relationship with the environment, a well-developed sense of place which derives from first-hand sensory, aesthetic, and even spiritual experience of environment. The ultimate aims of environmental education are in the words of the 1974 HMI Report "the creation of responsible attitudes and the development of an environmental ethic". The implications for teaching and for learning are profound.

3. AIMS

> *"The aim of environmental education is to redirect man's relationships with his environment towards a sustainable mode of existence."*
>
> Peter Martin, WWF (UK)

3.01 Perhaps the most coherent and comprehensive statement of aims for environmental education is that set out by Unesco [1975]:

i) to foster clear awareness of and concern about economic, social, political and ecological interdependence in urban and rural areas;

ii) to provide every person with opportunities to acquire the knowledge, values, attitudes, commitment and skills needed to protect and improve the environment;

iii) to create new patterns of behaviour of individuals, groups and society as a whole towards the environment.

3.02 The Schools Council Project Environment [Colton and Morgan, 1974] identified three main elements of environmental education as education IN and THROUGH the environment, education ABOUT the environment, and education FOR the environment. All three elements are essential for effective environmental education, but the most vital and distinguishing element is education FOR the environment. This is concerned with the fostering of an environmental ethic underpinned by scientific insight, enlightened self-interest, and genuine feelings of concern for the quality of environment. In the final analysis, it is about guidance for action and change for more sustainable ways of living. These aims recognise the all embracing nature of the environment and this holistic view should be clearly reflected in environmental education and the strategies used to implement it. Such aims cannot be achieved through any one existing subject or discipline. Environmental education is not in itself a subject, but a process, an approach, which can and should be followed right across and through the curriculum. There are few subjects which do not contain an environmental dimension or provide scope for environmental learning.

4. GUIDING PRINCIPLES

4.01 It is possible to characterise further the approach to environmental education by means of a set of guiding principles. These combine philosophical, pedagogical and organisational considerations, and together they amount to a checklist of essential elements. Environmental education should:

4.02 develop a more ECOCENTRIC approach based on a recognition that man is part of his environment and not apart from it; that the environment has intrinsic as well as instrumental value, and that it does not exist solely to satisfy human wants, material or otherwise. This ecocentric (as opposed to man-centred) perspective is of fundamental importance.

4.03 adopt an HOLISTIC view which recognises the essential unity of the environment and the total dynamic interdependence of its natural and human component parts, systems and processes. It follows that environmental education should emphasise synthesis and process rather than content. Ideally it should avoid the study of aspects of environment - scientific, aesthetic, economic, social, political, or even spiritual - in isolation or from the restricted viewpoint of a single subject or discipline.

4.04 be a COHERENT, CONTINUOUS AND PROGRESSIVE lifelong process which should start at the pre-school level and continue through all stages of formal education and beyond. If this idea is to be realised it will require a co-ordinated approach, particularly at school level, based on carefully devised whole-school policies for environmental education sustained by appropriate management and organisational structures.

4.05 be firmly rooted in DIRECT EXPERIENCE. Fieldwork is an indispensable part of environmental education. It should be continuous, focused and progressive, and properly integrated with classroom and other learning experiences. It should provide for a range of experiences in the environment - sensory, aesthetic, contemplative, in addition to empirical study - and use a range of environmental settings, from urban to rural and local to remote. The importance of fieldwork should be reflected in timetable and other institutional arrangements which are flexible enough to accommodate and even encourage work outside the classroom.

4.06 adopt a CONCENTRIC approach. Environmental education should begin with and be based in the local environment, but should also promote awareness which extends to the regional, national, and global scale. As part of this progression it is important that the learner is led to appreciate and to understand the connections between the wider environment and everyday local actions and needs.

4.07 be essentially INTERDISCIPLINARY in character. Environmental education cannot be the exclusive preserve of any one subject or group of subjects. Ideally environmental education should pervade the whole curriculum whether it be through existing subjects, by means of curriculum inserts, specialised courses, or through genuinely interdisciplinary programmes of study. Whatever the form of implementation, co-ordination will be essential at school level to ensure a comprehensive and balanced treatment of topics and to avoid unnecessary overlap.

4.08 use an ISSUE-BASED approach when appropriate. Many environmental issues are inherently controversial but this does not mean that they should necessarily be avoided. The exploration of issues and values does, however, demand

sensitive handling and an open-ended approach if charges of indoctrination are to be avoided. Issues explored should range from the local to the global scale and should always seek to highlight their relevance to the individual.

4.09 incorporate an approach which involves PROBLEM SOLVING where the aim is to identify and define problems and to generate answers and explore possible alternative solutions to real issues at an appropriate level. This approach should be realistic, practical and uncompromising and, if possible, focused on immediate current or local issues. Such an approach offers opportunities to explore and clarify values and to appreciate the complexity of environmental issues.

4.10 use as wide a VARIETY OF TEACHING AND LEARNING APPROACHES as possible. Environmental issues are generally complex and demand such a variety of approaches. These might include class and field-based project work, simulations, role play, action research, use of information and other microtechnology, visits and residential experience.

4.11 be conspicuously PUPIL CENTRED so that all pupils can make a full contribution to the learning process and develop their own ideas about the environment and their role in it.

4.12 be OUTWARD LOOKING by involving, directly or indirectly, individuals and organisations outside the school whenever appropriate. Inputs might be sought from professional ecologists and conservationists, industrialists, developers, planners, local politicians, local government officials among many others, and, equally importantly, from parents.

4.13 GENERATE ACTION by encouraging individuals to take responsibility for the care, management and shaping of their own environment; directly through participation in practical conservation projects or indirectly, as informed and concerned adults, through the democratic process.

4.14 be above all EXEMPLARY. Pupils are quick to notice hypocrisy and calls to care for the environment are likely to be ignored if those who do the urging are less than caring in their own behaviour. Teachers clearly have a special responsibility to set a good example.

5. ENVIRONMENTAL EDUCATION IN THE FORMAL CURRICULUM

> *"By going as far as he now has towards taking over the earth from nature, man has made it inevitable, not only that he should manage nature, but also that he should henceforth learn to manage himself as a part of nature."*
>
> Max Nicolson "The Environmental Revolution"

5.01 Earlier sections of these Guidelines have stressed the significance of environmental education and this implies that education authorities should ensure that:

a) *All* pupils are exposed to a programme of environmental education throughout their school career.

b) The programme is relevant and progressive and that the efforts of everyone contributing to it are properly co-ordinated.

c) The programme is concerned with environmental education rather than just environmental study so that it includes a conscious attempt to build up an environmental ethic and a sense of stewardship. This vital attitudinal component is lacking in much environmental work at present.

5.02 Environmental education can be included in the curriculum in three main ways:

a) By *permeating* the curriculum and out-of-school activities of all schools. This would not involve teaching specific environmental themes but would involve teachers using relevant opportunities in many different parts of the curriculum to heighten pupils' awareness of the importance of the environment and the need for it to be used with care. This would require a deliberate school policy involving curricular and organisational review.

b) By developing *syllabus inserts* on environmental education which are sufficiently important and relevant to be included in the design of programmes of work in primary schools or courses in secondary schools. Some opportunities which currently exist are considered in sections 5.06 to 5.14 below.

c) By drawing up *specialised courses* of study in discrete examinable courses such as modules in the National Certificate. Details are given in 5.16 below. The recent extension of SCE short courses and National Certificate modules into the 14-16 age range makes this approach much more significant.

5.03 PRIMARY EDUCATION

Following the publication of the "Primary Memorandum" in 1965 many schools started to develop environmental studies but both the quality and quantity of this work varied greatly. The HMI Report "Learning and Teaching in P4 and P7" [1980] was also very critical of much of the environmental work seen during the survey of 152 primary schools. This led to much activity in producing guidelines for teachers including the SCES Report "Environmental Studies in the Primary School" [1981] and many detailed reports produced by education authorities. The HMI Report "Learning and Teaching: The Environment and the Primary School Curriculum" [1984] continued the debate about the nature of environmental studies and forms part of the basis for the Primary Education Development

Project. This major initiative aims to produce model school programmes, to prepare a range of teacher and pupil resources, to carry out feasibility studies to test model programmes and resources, to test various means of assessing progress of pupils, and to devise procedures to evaluate the model programmes. The teacher and pupil resources will cover a wide range of topics related to studies of the environment. It is hoped that the project will encourage a more coherent and better quality of environmental work in primary schools.

5.04 EDUCATION 10-14 IN SCOTLAND

The CCC issued this report as a consultation paper in May 1986. Some of its recommendations, such as the call for more collaboration between the primary and secondary sectors in planning the curriculum and for changes in the time allocations for subject areas, may benefit environmental education. The report does, however, consider environmental work almost entirely in the context of study of the local environment. Broader environmental issues and the attitudinal components of environmental education are neglected. The CCC has now submitted formal advice to the Secretary of State for Scotland on Education 10-14 and his views are awaited.

5.05 SECONDARY EDUCATION

A wealth of curriculum reports and new syllabuses have been issued in recent years. Many contain substantial opportunities for improvements in environmental education but

* some are not mandatory and are likely to be given a low priority, at least until Standard grade is fully operational;

* some are only designed for pupils of limited ability, so future decision makers may be excluded from them;

* some pupils may take several such courses and suffer from "environmental fatigue" if great care is not taken to co-ordinate their content.

Some of the more important reports and opportunities for environmental education are considered in the rest of this section. Many other opportunities exist.

5.06 CURRICULUM GUIDELINES FOR S1/S2 SOCIAL SUBJECTS

These Guidelines were published as a CCC Implementation Paper in August 1986. The main thrust is in line with the principles of the 10-14 report and the environment is given an important place. The desirability of greater coherence in the S1/S2 Social Subjects curriculum is reflected in the multisubject components of the course and the collaborative planning which is recommended. The aims include:

* "To increase pupils' knowledge and understanding of the world's physical and social environments in time and space."

* "To encourage sensitivity to the needs of individuals, of society and of the environment."

Within the overall dimensions of the course a focus on the local community and environment provides a frame of reference for all four fields of study. Two of the fields of study "People and Place" and "People in Place, Time and Society" are

particularly important as far as environmental work is concerned. If a school adheres to the principles set out in these S1/S2 Social Subjects Guidelines most pupils will find their environmental experience significantly improved.

5.07 SCIENCE IN S1 AND S2

This course was introduced following the publication of Curriculum Paper No 7 in 1969 and is now well established in almost all schools. It contains significant opportunities for environmental work particularly:

* Section 2 "Conservation of Wildlife"
* Section 3 "Energy"
* Section 5 "The Water Cycle"
* Section 12 "The Earth - its Structure and Soils".

5.08 STANDARD GRADE SCIENCE

This course is currently offered at Foundation and General levels and is to be available at Credit level in future. The Science course includes a compulsory section on environments and how these can be changed. It might be possible for a school or group of schools to develop an additional optional section to supplement work in this area. The compulsory environments topic accounts for 20% of the time in the two-year course. The first examinations were held in 1986.

5.09 STANDARD GRADE BIOLOGY

Certification for this two-year course will be offered at General and Credit levels. One of the seven main topics concerns ecosystems; pupils study the components of an ecosystem and learn about how ecosystems are controlled in nature and managed by man. Other environmental issues are raised throughout the course, for example fossil fuels, altering the environment through vegetation, and waste disposal. The first examinations are due to be held in 1990.

5.10 STANDARD GRADE SOCIAL AND VOCATIONAL SKILLS

This new multidisciplinary course is currently offered at Foundation and General levels and is likely to be available at Credit level in future. It consists of three major themes - Home, Work, and Community. All of these could provide opportunities for environmental education but the Community theme offers the most scope. The guidance document suggests that a study of the local environments and a study of other environments are appropriate topics. The first examinations were held in 1986.

5.11 STANDARD GRADE CONTEMPORARY SOCIAL STUDIES

In this new multidisciplinary course pupils study nine modules, including a compulsory module on the environment, contemporary issues and problems, and three optional modules. The optional modules can include topics that have been dealt with elsewhere in the syllabus and provide additional opportunities for study of environmental issues. The first examinations are due in 1988.

5.12 STANDARD GRADE GEOGRAPHY

Important concepts and attitudes which should be developed in the course include location, change, diversity, conflict, co-operation, and a concern for and awareness of the problems facing the environment. The course is based around a set of key ideas, a number of which specifically relate to the environment at local, national, and world scales. This gives it a strong environmental underpinning and the course should make an important contribution to environmental education. The first examinations are due in 1990.

5.13 STANDARD GRADE ART AND DESIGN

Art and Design is offered at Foundation, General, and Credit levels. It is arranged in six units, each of which should be based on one or more contexts, one of which is the human and natural environment.

There is considerable potential for environmental work, though the treatment will, no doubt, vary from school to school. The first examinations are due in 1988.

5.14 STANDARD GRADE MODERN STUDIES

This course will be offered at Foundation, General, and Credit levels. It will offer considerable scope for environmental work particularly through the themes of change and international relations. The first examinations will be held in 1990.

5.15 HIGHER GRADE

The phased introduction of Standard grade will lead to a limited revision of all Higher grade and Certificate of Sixth Year Studies courses over the next few years. The new courses could provide greater opportunities for environmental work than the existing courses.

5.16 NATIONAL CERTIFICATE MODULES

The 16+ "Action Plan" involved the replacement of existing non-advanced FE provision by modules which form part of a new unified National Certificate. The modules are of 40 hours duration and full-time programmes consist of about 20 modules per year. The first modular programmes started in August 1984. These were closely based on existing FE courses but broader programmes have emerged. The Catalogue will undergo continuous revision. Locally-devised modules may be validated and included in the Catalogue. The modular system offers great potential for environmental work but much depends on how the modules are taught and the context of the teaching. Those with the most obvious possibilities and available in the 1987/88 SCOTVEC Catalogue include:

61174 Environmental Studies in the Local Area
68001 Environment Primer (half-module)
78002 Trees in the Environment (half-module)
68009 Local Environment
61176 A Residential Experience
61184 Contemporary Issues (half-module)
68008 Rural Land Use (half-module)
78455 Wildlife Conservation I (half-module)
68456 Wildlife Conservation II (half-module)
61183 History in the Local Area

65679 Landscape I - The Natural Environment (half-module)
65680 Landscape II - Human Impact
65681 Townscape I - Urban Environment
65682 Townscape II - Field Study (half-module)

Take-up of these modules in schools has been slow but substantial numbers of students in further education have already successfully completed one or more of the modules on this list. An intended Department Circular on "Use of Nationally Certificated Short Courses in Schools" would greatly extend the opportunities for schools in S3/S4 through the implementation of National Certificate modules alongside SCE short courses and full 'S' grade two-year courses. This important innovation would enable the delivery of environmental education, as well as a number of other highly desirable areas in the curriculum, through certificatable short courses or modules, thus complementing the permeation and curricular insert strategies within the compulsory years of schooling.

5.17 TVEI

The Technical and Vocational Education Initiative is designed to give pupils a better preparation for the world of work. It covers the 14-18 years and has a technological and vocational bias. It also, however, stresses the need for personal development and gives strong encouragement to the development of challenging out-of-school activities and residential experience. Many different pilot schemes exist and some courses have a strong environmental component. Pupils may be presented for external examination including SCE subjects and National Certificate modules. A major extension of this initiative is planned for August 1987 and most schools are likely to be involved within a few years.

5.18 YTS

Pupils on the two-year YTS courses are required to undergo a significant amount of training with some personal and social development. Some imaginative schemes have been devised which include environmental experience, though these are probably few in number at present.

6. ENVIRONMENTAL ORGANISATIONS AND THE CURRICULUM

> *"What will be the world view and role in society of the child for whom . . . the animal is merely a toy or tool, the tree merely timber . . .?*
>
> *"Might it not be that the type of relationship which today's decision-makers had with nature in their youth is largely responsible for the destruction of our natural environment and the devastation of the planet?"*
>
> J-P Ahr, Naturopa No 50, 1985

6.01 We are all environmental decision-makers. Our essentially urban society, however, has increasingly separated us from "the rawness and reality of nature" [Maclean, Night Falls on Ardnamurchan, 1984], so that all too often we are unlikely to be able to see beyond the plaything or the product if our studies of the environment are restricted, spatially, to the classroom. The formal sector is not alone in seeking to extend the quality of environmental education and to provide direct participatory experience whether in practical conservation activities or in the public environmental debate. The resources of those working in the wider environment, however, are still very much under-used and under-valued by the formal sector.

6.02 Within Scotland there is a remarkable range of "environmental" resources and expertise available to the teacher. The so-called "environmental organisations" generally have conservation and research as their primary functions; increasingly they provide recreational facilities at their sites and properties; increasingly they are aware of their potential as contributors to the educational process. These organisations cover both the natural and the built environment: details are given in Appendix B.

6.03 Education, the environmental organisations, and society as a whole have everything to gain from greater and better educational use of the resources of those bodies not formally a part of the educational network. The way ahead might be summarised under three main heads.

a) the need for the environmental organisations to work more closely together;

b) the need for schools and colleges to be fully aware of the environmental organisations and the resources and facilities that are available;

c) the need for teachers and lecturers to develop fuller understanding of how best to use and integrate these "outside" resources into the curriculum.

6.04 COLLABORATION BETWEEN THE ENVIRONMENTAL ORGANISATIONS

New environmental and heritage groups are springing up in different parts of Scotland. In some cases these are new branches of national bodies, in others they are quite separate and localised grass-roots groups often dependent upon the short-term assistance of the Manpower Services Commission. Although this could lead to fragmentation of effort there is at the same time a clear desire for greater collaboration. While each wishes to identify its own educational priorities, it is equally necessary that they look beyond individual concerns and

agree how, collectively across Scotland, they can best contribute to environmental education.

6.05 Individually and collaboratively the various organisations need to have a fuller and up-to-date understanding of what is happening in the world of formal education. It could be to the advantage of the environmental bodies themselves, as also of the formal education system, if the educational focus of the many "environmental organisations" could be sharpened and assisted by a non-sectarian body - a role that has been proposed for the Scottish Environmental Education Council [Learning for Living; Environmental Education in Scotland, 1985].

6.06 AWARENESS OF AVAILABLE RESOURCES

Whether public, private, or voluntary, the environmental organisations have willingly - but not always easily or conveniently - provided information, advice, material support, and access to facilities. However, few schools are sufficiently aware of the range of opportunities available, let alone disposed to make use of them. Examples of local directories of environment-based resources have been prepared in Tayside and Lothian; museum resources for education across Scotland have been gathered and disseminated through the Scottish Museums Council; the PEDP is currently exploring the storage and transmission of resources data on computer disc; SEINE's environmental database project is ongoing.

6.07 However, initiatives are fragmented and the outside environmental bodies have neither the staff nor the funds each to provide sufficiently detailed information services, let alone materials, to each individual school or college. That is why the Conservation Trust movement is looking at ways of feeding educational data into NERIS for UK-wide access. There is an evident need to explore:

a) ways of developing a greater awareness in schools of the environmental organisations and what they can offer;

b) ways of minimising pressures on these organisations arising out of requests from schools.

At a national level, the SCDS, colleges of education and SEEC, acting in collaboration with the national environmental bodies, can play a major role in assembling, preparing, and disseminating materials. At regional level, advisory services and resource centres also have an important part to play in informing school staffs of the resources offered locally by environmental organisations, as well as encouraging their use.

6.08 GOOD USE OF ON-SITE "PRIMARY SOURCES"

The many reports in recent years from the SED, CCC, and other sources contain numerous references to "environmental studies" but few to that socially more substantial and educationally more demanding concept "environmental education". There are also many references to "out-of-school visits" - but very few that do other than assert that these should happen. Thus it is that when approaches are made to the environmental organisations, generally in an ad hoc way, the school has often little idea of what it really wants beyond a talk or a guided visit. Yet the resources, primary source material, are unique.

6.09 Raven for instance [Opening the Primary Classroom, 1985/86] found teachers unclear as to what they hoped their pupils would "do better" as a result of a visit to a zoo or a nature reserve other than "to know more about animals and to care for conservation". Apparently not mastery of new principles or insights, for in

"appealing for conservation the pupils' teachers did not appear to have encouraged them to enquire into the socio-economic processes which are leading certain species to be endangered". Nor was there evidence "of the schools having encouraged the children to accept personal responsibility for conservation" by direct involvement in, say, reducing the levels of environmental pollution around their school. Still less did Raven find evidence of the schools using such projects "to confront pupils with the grim realities involved in trying to get manufacturing industry, and householders in general, to change their behaviour". In other words, there was little attempt to encourage insights into the way society works and to foster "the development of the attitudes and competencies needed". There is a requirement, therefore, to explore ways of ensuring:

a) that the contact between school and out-of-school resources, including the environmental organisation, produces maximum educational benefit;

b) that it takes place within the context of a properly understood, well-managed, and balanced curriculum.

6.10 If we believe that education is concerned with the development of competencies rather than simply with knowledge, that environmental education is central to our concept of education and a particularly appropriate vehicle for the development of these competencies, and that there is also a crucial ethical perspective to environmental education, then the proper exploitation of our remarkably rich environmental resources ought to be a primary focus for curriculum development and management, and for both preservice and inservice training.

6.11 The skills, expertise and experience within the environmental organisations, and their complementary approach to education, not just their physical resources, are invaluable to the continued development of environmental education, through promoting an awareness of environmental issues at both local and world levels. Mechanisms to allow more regular collaboration between staffs in formal and non-formal educational organisations are necessary, as is the secondment or funding of educationists and teachers to the outside environmental organisations themselves to foster their important contribution to curriculum development in primary and secondary schools in Scotland.

7. MEANS OF IMPLEMENTATION AND RECOMMENDATIONS

7.01 A programme of environmental education will only be as effective as the co-ordinator of the programme and this key individual must be chosen carefully. An assistant head can represent the interests of environmental education within the senior management team but commitment and enthusiasm are almost certainly more important than rank. Headteachers have a role to play in ensuring that the school co-ordinator receives all the support possible from advisers and outside agencies and an adequate share of school resources with which to fund the programme. Headteachers should also ensure that staff have the opportunity to undertake training for programmes of environmental education in courses organised by the authority, colleges of education, and others. Ultimately the success of the programme will rest on the classroom teachers who implement it and adequate preparation and training are essential.

7.02 The co-ordinator should liaise with appropriate education authority advisers to ensure that the school receives the necessary available support and guidance. There is no shortage of advice from a great variety of sources to assist schools in the difficult task of initiating a programme of environmental education. Appendix C gives a list of useful addresses from which further help and guidance is available. A great deal of mutual support can be derived from contact with colleagues in neighbouring schools or associated primary and secondary schools.

7.03 The co-ordinator should begin the programme by setting up a group within the nationally agreed time laid down for curriculum development tasks. The first task of the group would be to undertake a curriculum mapping or review exercise to ascertain possibilities for environmental education in terms of the threefold strategy of curriculum design suggested in these Guidelines. The preparation of this checklist will enable the co-ordinator to monitor the diverse contributions made by courses at different stages, and permit overlap and gaps to be more easily identified. The various stages involved in the production of a school policy are outlined in Appendix A.

7.04 Much of the help which teachers receive should be generated within the school group. The particular subject contributions and the nature of the local environment will obviously vary from school to school and will be of prime importance in determining the nature of the pupils' environmental learning experience. One of the functions of the school group must be to monitor and assess the progress of the programme and to ascertain how the programme might be improved. Since the programme will be implemented by a number of teachers in different areas of the school curriculum, the complex task of assessing a cross-subject dimension entailed in a programme of environmental education will require careful planning in the context of the assessment policy of the school.

7.05 If environmental education is to be implemented effectively as one of a number of competing highly desirable activities for all pupils, it is recommended that the frame of reference set out in these Guidelines be used as a stimulus for schools to implement their own programmes. Recent proposals and developments at national level - the Primary Education Development Project, the CCC's Position Paper on 10-14, the certification of short courses and modules in schools, the further phases proposed for Standard grade, the extension of TVEI, and the revision of Highers and post-Highers - offer schools a considerable range of curricular opportunities to enhance the teaching and learning potential inherent in well managed programmes of environmental education.

7.06 RECOMMENDATIONS

a) *Schools should plan a whole-school policy for environmental education as one of a number of highly desirable curricular activities.*

b) *Course design based on the Guidelines should enable programmes of environmental education to be incorporated in the curriculum of all pupils.*

c) *A member of the senior promoted staff in each school should have responsibility for developing a co-ordinated policy of environmental education.*

d) *Schools should utilise the opportunities for accreditation offered by SCE short courses and National Certificate modules in the provision of courses of environmental education.*

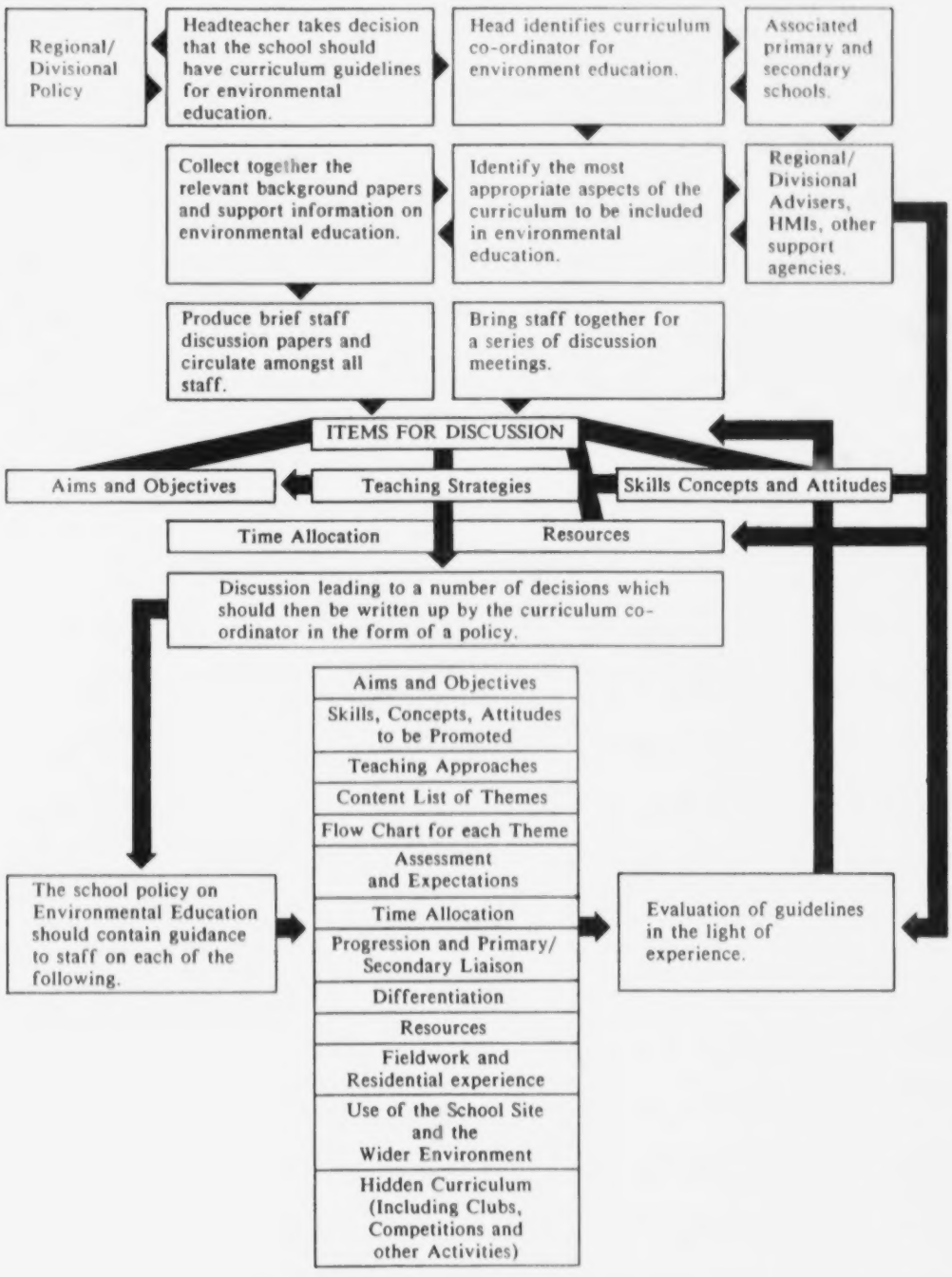
e) *Schools and education authority Advisers should utilise the support provided by the environmental organisations in both the formal and informal curriculum.*

f) *There is a need for a more structured provision of teacher training courses in environmental education both at preservice and inservice levels.*

g) *The development of environmental competence should run as a continuous strand through the whole educational process - primary, secondary, and beyond.*

APPENDIX A:

FRAMEWORK FOR THE PRODUCTION OF A SCHOOL ENVIRONMENTAL EDUCATION POLICY


Regional/ Divisional Policy
Headteacher takes decision that the school should have curriculum guidelines for environmental education.
Head identifies curriculum co-ordinator for environment education.
Associated primary and secondary schools.
Collect together the relevant background papers and support information on environmental education.
Identify the most appropriate aspects of the curriculum to be included in environmental education.
Regional/ Divisional Advisers, HMIs, other support agencies.
Produce brief staff discussion papers and circulate amongst all staff.
Bring staff together for a series of discussion meetings.
ITEMS FOR DISCUSSION
Aims and Objectives
Teaching Strategies
Skills Concepts and Attitudes
Time Allocation
Resources
Discussion leading to a number of decisions which should then be written up by the curriculum co-ordinator in the form of a policy.
The school policy on Environmental Education should contain guidance to staff on each of the following.
Aims and Objectives
Skills, Concepts, Attitudes to be Promoted
Teaching Approaches
Content List of Themes
Flow Chart for each Theme
Assessment and Expectations
Time Allocation
Progression and Primary/ Secondary Liaison
Differentiation
Resources
Fieldwork and Residential experience
Use of the School Site and the Wider Environment
Hidden Curriculum (Including Clubs, Competitions and other Activities)
Evaluation of guidelines in the light of experience.

APPENDIX B:

ENVIRONMENTAL ORGANISATIONS

The list below includes both "environmental organisations" and those whose remits include a substantial amount of "environmental" work. Emphasis is on Scottish organisations and those with an effective "branch" in Scotland.

1. Public Bodies

Nature Conservancy Council
Countryside Commission for Scotland
Forestry Commission
Historical Buildings & Ancient Monuments Department (SDD)
Department of Agriculture and Fisheries for Scotland
Colleges of Agriculture
Departments of Universities, Central Institutions and other professional institutes
Local Authority Departments

2. Private and Voluntary Bodies

Many other bodies which are private and voluntary have remits often more flexible than those of the statutory and public authorities. Some specialise in wildlife conservation; others in the preservation of Scotland's historical heritage; others take a broad spectrum approach to the environment, rural and urban. They include such organisations as:

Oxfam
Royal Museums of Scotland
Scottish Archaeological Society
Scottish Wild Land Group
Town and Country Planning Association
National Trust for Scotland
Scottish Wildlife Trust
Royal Society for the Protection of Birds
Woodland Trust (Scotland)
Friends of the Earth (Scotland)
World Wildlife Fund
Scottish Conservation Projects Trust
Keep Scotland Beautiful
Scottish Field Studies Association
Scottish Environmental Education Council
Intermediate Technology Development Group
Council for British Archaeology (Scotland)
Ecological Parks Trust
Council for Urban Studies Centres
Council for World Development Education
Scottish Civic Trust

They also include Scotland's Zoos, Wildlife Parks and Botanical Gardens, City Farms, Urban Wildlife Groups and Environmental Centres, Museums and Art Galleries, individual Country Houses and other Buildings and Historical Sites that offer facilities for educational use. The addresses of most of these organisations are given in Appendix C.

APPENDIX C:

LIST OF USEFUL ADDRESSES

Aberdeen Urban Studies Centre, Skene Square School, 61 Skene Square, Aberdeen, AB2 4UN

Association of Agriculture, Scottish Office, Royal Highland and Agricultural Society, Ingliston, Newbridge, Midlothian, EG28 8NB

Association of Independent Museums (AIM), Greater Manchester Museum of Science and Industry, Liverpool Road Station, Liverpool Road, Castlefield, Manchester, M3 4JP

Association for Industrial Archaeology, Ironbridge, Telford, Shropshire, TF8 7AW

Association of Science Education, College Lane, Hatfield, Herts, AL10 9AA

Ballater Field Centre, School Lane, Ballater, Aberdeenshire

Bellarmine Environmental Community Resource Centre, Bellarmine Secondary School, 42 Cowglen Road, Glasgow, G53 6EW

Centre for Alternative Technology, Llwyngwern Quarry, Machynlleth, Powys, Wales

Centre for Environmental Interpretation (CEI), Manchester Polytechnic, John Dalton Building, Chester Street, Manchester, M1 5GD

Council for British Archaeology, 112 Kennington Road, London, SE11 6RE

Council for Environmental Education (CEE), School of Education, University of Reading, London Road, Reading, Berks, RG1 5AQ

Council for Urban Studies Centres (CUSC), Notting Dale Urban Studies Centre, 189 Freston Road, London, W10 6TH

Countryside Commission for Scotland, Battleby, Redgorton, Perth, PH1 3EW

Environment Centre, Drummond High School, Cochran Terrace, Edinburgh, EH7 4QP

Ecological Parks Trust, c/o Linnean Society, Burlington House, Piccadilly, London, W1V 0LQ

Field Studies Council, Preston Montford, Montford Bridge, Shrewsbury, SY4 1HW

Forestry Commission, 231 Corstorphine Road, Edinburgh, EG12 7AT

Friends of the Earth (Scotland), 53 George IV Bridge, Edinburgh, EH1 1EJ

Glasgow Environmental Education Urban Projects (Gee-UP), c/o Education Offices, 129 Bath Street, Glasgow, G2 2SG

Green Teacher, 22 Heal, Pantrerhedyn, Machynlleth, Powys, Wales

Heritage Education Group, Civic Trust, 17 Carlton House Terrace, London, SW1Y 5AW

Historic Buildings Council for Scotland, 25 Drumsheugh Gardens, Edinburgh, EH3 7RN

Keep Scotland Beautiful, Old County Chambers, Cathedral Square, Dunblane, SK15 0AQ

Kodak Conservation Awards, 5-11 Theobalds Road, London, WC1X 8SH

London Ecology Centre, 45 Shelton Street, Covent Garden, London, WC2 2H

Museums Association, 34 Bloomsbury Way, London, WC1A 2SF

National Association for Environmental Education, West Midlands College of Higher Education, Gorway, Walsall, WS1 3BD

National Federation of City Farms, The Old Vicarage, 66 Fraser Street, Windmill Hill, Bedminster, Bristol, BS3 4LY

National Library of Scotland, Map Section, 137 Causewayside, Edinburgh, EH9 1PH

National Trust for Scotland, 5 Charlotte Square, Edinburgh, EH2 4DU

Nature Conservancy Council (Environmental Education Section) Northminster House, Peterborough, PE1 1UA

Nature Conservancy Council, 12 Hope Terrace, Edinburgh, EH9 4DU

Oxfam in Scotland, 25 Sandyford Place, Glasgow, G3 7NG

Royal Commission on the Ancient & Historical Monuments of Scotland, 54 Melville Street, Edinburgh, EH3 7HF

Royal Society for Nature Conservation, The Green, Nettleham, Lincoln, LN2 2NR

Royal Society for the Protection of Birds, 17 Regent Terrace, Edinburgh, 7

Royal Town Planning Institute, 15 Rutland Square, Edinburgh, EH1 2BE

Royal Zoological Society of Scotland, Scottish National Zoological Park, Edinburgh, EH12

Saltire Society, Saltire House, 13 Atholl Crescent, Edinburgh, EH3 8HA

Scottish Civic Trust, 24 George Square, Glasgow, G2 1EF

Scottish Conservation Projects, Balallan House, 24 Allan Park, Stirling, SK8 2QG

Scottish Countryside Rangers Association, Lochore Meadows Country Park, Crosshill, Nr Lochgelly, Fife, KY5 8BA

Scottish Development Department, New St Andrew's House, St James' Centre, Edinburgh, EH1 3SZ

Scottish Environmental Education Council, Department of Biology, Paisley College of Technology, High Street, Paisley, PA1 2BE

Scottish Field Studies Association, Kindrogan Field Centre, Enochdhu, Blairgowrie, Perthshire, PH10 7PG

Scottish Local History Forum, 15a Mansion House Road, Edinburgh, EH9 1LZ

Scottish Panel of Advisers in Outdoor Education, c/o Mrs A Watters, The Markinch Centre, Bowling Green Road, Markinch, Fife, KY7 6BD

Scottish Wildlife Trust, 25 Johnston Terrace, Edinburgh, EH1 2NH

Streetwork, Notting Dale Urban Studies Centre, 189 Freston Road, London, W10 6TH

WATCH, The Watch Trust for Environmental Education, 22 The Green, Nettleham, Lincoln, LN2 2NR

Wemyss Environmental Education Centre, Basement Suite, East Wemyss Primary School, School Wynd, East Wemyss, Kirkcaldy, Fife, KY1 4RN

West of Scotland Zoological Society, Calderpark Zoo, Glasgow, G71 7RZ

Wildfowl Trust, Slimbridge, Gloucestershire, GL2 7BT

World Conservation Strategy, IUCN, 1196 Gland, Switzerland

World Wildlife Fund, 11-13 Ockford Road, Godalming, Surrey, GU7 1QU